Teaching NeuroImage: Pontine Owl-Eyes Lesions in a Case of Neuroborreliosis

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Maria Isabel Vargas: Analysis or interpretation of data
Patrice H Lalive: Drafting/revision of the manuscript for content, including medical writing for content; Study concept or design; Analysis or interpretation of data

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Brain MRI in a 65-year-old woman with headache, sensory ataxia and tick exposure revealed leptomeningeal and cranial nerve enhancement and T2-hyperintense symmetrical pontine lesions resembling the “owl-eyes” sign, a radiological finding described in ischemic or compressive myelopathy (Figure A-C). CSF analysis revealed pleocytosis (163/µL) and intrathecal production of anti-\textit{Borrelia} IgG (CSF/serum index 21, N<2). Work-up was negative for alternative causes. The patient fully recovered after 21 days of ceftriaxone (Figure D-F).

Radiological findings in neuroborreliosis include signs of cranial neuritis, meningitis or stroke. In patients presenting with symmetrical T2-hyperintense lesions of the pons, this case supports the inclusion of neuroborreliosis in the differential diagnosis.
Appendix 1: Authors

<table>
<thead>
<tr>
<th>Name</th>
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References


**Figure: pontine owl-eyes lesions** - MRI before (A-C) and 1 week after (D-F) antibiotic treatment: axial T2 (A, D), coronal FLAIR with gadolinium (B, E), axial T1 with gadolinium (C, F). Initial MRI reveals symmetrical ovoid T2-hyperintense, T1-hypointense pontine lesions, with local (C), leptomeningeal (B) and cranial nerves (not shown) contrast enhancement. Post-treatment MRI shows absence of contrast enhancement in the lesions.
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